A STUDY OF OSTEOPROTEGERIN AS A PREDICTOR OF MYOCARDIAL INFARCTION IN TYPE 2 DIABETES MELLITUS PATIENTS

ABSTRACT

Introduction:

Osteoprotegerin (OPG) is a glycoprotein belonging to the tumour necrosis factor-α (TNF-α) superfamily. OPG has now emerged as an independent predictor of cardiovascular disease. This study focuses on the relationship between circulating OPG levels and cardiovascular complication like myocardial infarction, with special emphasis on diabetic patients.

Aim:

To assess the level of plasma osteoprotegerin (OPG) in type 2 diabetes, diabetic patients with myocardial infarction (MI) and healthy controls and to establish the role of plasma Osteoprotegerin as a predictor of Myocardial Infarction in type 2 diabetes mellitus patients.

Methodology:

We enrolled 90 patients and grouped them into 3 groups. The first group consists of 30 healthy controls. The second group consists of 30 type 2 diabetes mellitus patients from the Institute of Diabetology, Rajiv Gandhi Govt. General Hospital, Chennai. The third group consists of 30 type 2 diabetic patients with myocardial infarction from the Institute of Cardiology, Rajiv Gandhi Govt. General Hospital, Chennai. The study was carried out between 2017 and 2018. OPG was measured by enzyme linked immunosorbent assay (ELISA). Other parameters that

were measured include random blood glucose, total cholesterol, triglycerides, low density lipoprotein (LDL), high density cholesterol (HDL), creatine kinase (CK), creatine kinase-MB (CK-MB), lactate dehydrogenase (LDH) , aspartate aminotransferase (AST) uric acid, urea and creatinine.

Results:

There was a significant increase in OPG levels in the type 2 diabetes patients (18.75 ± 10.9 ng/dL) when compared to controls (9.07 ± 2.4 ng/dL). The highest levels of OPG were observed in the type 2 diabetes patients enduring MI (25.24 ± 12.9 ng/dL). The OPG levels correlated positively with glucose levels in the patients with diabetes (r =0.87; p value = 0.001) and diabetes with MI (r = 0.88; p value = 0.001) which shows that raised OPG levels are associated with raised glucose levels. There was no significant difference between age groups and gender.

Conclusion:

Higher OPG levels were associated with increased risk for MI in type 2 diabetes patients. OPG can be used as a biomarker for identifying cardiovascular risk in type 2 diabetes patients.

Keywords:

Osteoprotegerin, Glucose, Type II Diabetes Mellitus, Myocardial Infarction.